REMARKS

Reconsideration of this application is respectfully requested.

THE ALLOWED CLAIMS

The Examiner's allowance of claims 7 and 8 is respectfully acknowledged.

THE SPECIFICATION

The specification has been amended to provide proper antecedent basis for the recitation in amended claim 1 that the reinforcement discs have substantially a same outer dimension as the magnet discs. It is respectfully pointed out, moreover, that this feature is clearly shown in each of Figs. 1-4, and that the addition of this recitation in the specification (and claims) therefore does not comprise new matter.

Accordingly, it is respectfully requested that the amendment to the specification be approved and entered, and that the rejections under 35 USC 112, first and second paragraphs, be withdrawn.

THE PRIOR ART REJECTION

Claims 1-6 were rejected under 35 USC 103 as being obvious in view of the combination of JP 06245473A ("Takemoto et al") and JP 09043418 ("Miura et al") and/or USP 5,448,123 ("Nilson et al"). These rejections, however, are respectfully traversed.

According to the present invention as recited in claim 1, a rotor is provided which comprises a spindle, a plurality of magnet discs, a clamping device, and a reinforcement disc of a non-magnetic high-strength material provided at least one of (i) between at least every second magnetic disc, and (ii) between at least one of the magnetic discs and the clamping device, wherein the clamping device exerts an axial clamping force on the magnet discs to accomplish a frictional engagement between the reinforcement discs and the magnet discs for transferring centrifugal forces from the magnet discs to the reinforcement discs, thereby relieving the magnet discs of tensile stress. In particular, according to the structure of the present invention as recited in claim 1, the reinforcement discs have substantially a same outer dimension as the magnet discs. This is important for at least three reasons. Namely:

1. It clearly indicates that the reinforcement of the magnet discs is not accomplished by any structure located radially outside the magnet discs but is obtained by the frictional engagement only between the reinforcement discs and the magnet discs.

2. It also means that when the rotor is assembled completely, with the magnet discs and reinforcement discs in proper places and the axial clamping force applied to the discs for frictionally locking them together, the cylindrical outer surface of the rotor may be machined by grinding so as to guarantee that the rotor is perfectly cylindrical in shape and

fit to run perfectly true relative to its axis. This makes the rotor apt to cope with high speed operation without causing any vibrations. And it is respectfully pointed out that this advantageous effect is not possible with rotors having other types of reinforcement devices. For instance, in the rotor described by Miura all magnet and reinforcement rings have to be accurately machined before assembly, and still, spreading of tolerances may cause some untrue rotation.

3. It defines a rotor where the air gap between the rotor magnets and the stator can be kept very small, which means that the efficiency of the motor is high.

Accordingly, the structure of the claimed present invention as recited in claim 1 achieves effective reinforcement of the magnet discs while keeping manufacturing and assembly costs low.

In the Final Office Action, the Examiner asserts that Takemoto et al discloses a rotor having a "plurality of discs (1)" stacked on a spindle, and a "clamping device (11)" for exerting an axial clamping force on the magnet discs. <u>This is not correct</u>. Instead, Takemoto et al merely discloses a rotor having cylinder shaped magnets (1) which are supported on a spindle (3) by means of a molded structure of a resinous material. In Takemoto et al, however, there is no structure for applying any axial clamping force on the magnets or in any other way accomplishing a radial reinforcement of the magnets.

In addition, it is respectfully pointed out that even if Takemoto et al, Miura et al and/or Nilson et al were combinable

in the manner suggested by the Examiner, the above described structural features and advantageous effects of the rotor of the present invention as recited in claim 1 would still not be achieved or rendered obvious.

Accordingly, it is respectfully submitted that the present invention as recited in claim 1, as well as claims 2-6 depending therefrom, patentably distinguishes over the cited prior art references, taken singly or in any combination, under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of all of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

Douglas Holtz
Reg. No. 33,902

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Frishauf, Holtz, Goodman & Chick, P.C.
767 Third Avenue - 25th Floor
New York, New York 10017-2023
Tel. No. (212) 319-4900
Fax No. (212) 319-5101
DH:

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action accomplished by the clamping device 24-26,28 frictionally engages each side of the magnet discs 21. This frictional engagement results in a transfer of centrifugal forces from the magnet discs 21 to the reinforcement discs 23 resulting in a tensile stress relief in the magnet discs 21.

In order to fulfil this task, the reinforcement discs 23 are made of a high-strength material such as high-strength metal, ceramic, composite etc. which is very stiff to tensile forces. Accordingly, the coefficient of elasticity of these materials is very high.

In some cases where the centrifugal forces are not too high and/or the magnet discs are thin, it might be enough to use a reinforcement disc 23 between every second magnetic disc 21 only (see Fig. 4).

If the magnet discs 21 are thin, it may also be enough to use an electrically insulating layer 22 between every second magnet disc 21 only.

As clearly shown in Figs. 1-4, the reinforcement discs 23 have substantially a same outer dimension (as the magnet discs 21.) (diameter)

As appears from the drawing figures, the magnetic discs 21 as well as the reinforcement discs 23 are of a flat shape and the centrifugal forces appearing in the magnetic discs 21 are transferred by pure friction to the reinforcement. Using pure flat discs is advantageous in that the discs are easily manufactured from sheet material. Machining the discs into other shapes would be very difficult since the high-strength material in the reinforcement discs 23 is very hard to work. It is conceivable, though, to use conical discs such that the frictional engagement between the magnetic discs 21 and the reinforcement discs 23 is amplified by a radial wedge action between the discs.